AMENDMENT

In the Claims:

Please cancel claims 11-13 without prejudice or disclaimer.

Please amend claims 5-9, 14-16, and 22 as follows.

1. (Allowed) A communication system, comprising:

a central station that receives an optical data signal and applies a composite code to the optical signal, the composite code including a first code and a second code, so as to produce a composite-coded optical signal;

a first-level mux station that receives the composite-coded optical signal and decodes the first code from at least a portion of the optical signal, producing a first-level decoded optical signal;

a second-level mux station that receives the first-level decoded optical signal and decodes the second code from at least a portion of the optical signal, thereby producing a fully decoded optical signal; and

a user station that receives the fully decoded optical signal.

2. (Allowed) The communication system of claim 1, wherein the first-level mux station includes a reconfigurable encoder for applying a selected composite code.

3. (Allowed) The communication system of claim 1, wherein the central station applies a composite code selected from a set of composite codes.

4. (Allowed) The communication system of claim 3, wherein composite codes are generated from a set of first-level codes and a set of second-level codes.

5. (Amended) A central station for an optical network, comprising:

a transmitter coupled to produce an optical data signal from an electrical data signal; and

an encoder coupled to apply a composite code to the optical data signal, the composite code having a first-level code and a second-level code, wherein the first-level code is to identify a first user station and the second-level code is to identify a second user station.

6. (Twice Amended) The central station of claim 5, wherein the composite code to be applied by the encoder is a temporal code.

7. (Twice Amended) The central station of claim 6, wherein the composite code is an address code designate an intended destination for data defined by the electrical data signal.

8. (Twice Amended) A multiplexing station for an optical network, comprising:

a temporal address decoder coupled to receive a signal containing data coded according to a first downstream address code and a second downstream address code and to strip the first and second downstream address codes from the signal, wherein the first downstream address code is to designate a destination for a first portion of the data and the second downstream address code is to designate a destination for a second portion of the data.

9. (Twice Amended) The multiplexing station of claim 8, wherein the temporal address decoder is to strip an optical code from the signal.

10. (Amended) The multiplexing station of claim 9, wherein the optical code is a composite code.

11. (Canceled) The multiplexing station of claim 8, wherein the temporal address encoder applies an optical code.

12. (Canceled) The multiplexing station of claim 11, wherein the optical code is a composite code.

13. (Canceled) The multiplexing station of claim 8, wherein the temporal address encoder includes at least one fiber Bragg grating that applies the code.

B4

14. (Twice Amended) The multiplexing station of claim 8, wherein the temporal address decoder comprises at least one fiber Bragg grating coupled to strip the code.

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15. (Amended) The multiplexing station of claim 14, further comprising an optical circulator coupled to direct the signal to at least one fiber Bragg grating.

B6

16. (Twice Amended) A method, comprising:

selecting a first temporal code and a second temporal code for an optical signal to identify a first user station and a second user station, respectively;

applying the first and second temporal codes to the optical signal with at least one fiber Bragg grating;

broadcasting the optical signal to the first and second user stations; and

recovering data from the first and second temporal codes by the first and second user stations, respectively.

B7

17. (Amended) The method of claim 16, wherein the temporal code is a composite code.

18. (Canceled) A passive optical network, comprising at least one multiplexing station that receives a first optical signal, applies a first-level code to the first optical signal, and transmits a coded first optical signal; and that receives a second optical signal, decodes a first-level code from the second optical signal, and transmits a resulting decoded optical signal.

19. (Allowed) A passive optical network, comprising:

at least one multiplexing station that receives a first optical signal, applies a first-level code to the first optical signal, and transmits a coded first optical signal; and that receives a second optical signal, decodes a first-level code from the second optical signal, and transmits a resulting decoded optical signal; and

a second-level multiplexing station that receives an optical signal from the first-level multiplexing station and decodes the optical signal to decode a second-level code.

20. (Allowed) The passive optical network of claim 19, wherein the second-level multiplexing station applies a second-level code to an optical signal that is transmitted to the first-level multiplexing station.

21. (Allowed) A communication system, comprising:

a user station that transmits an optical signal.

a second-level mux station that receives the optical signal and applies a second-level code to the optical signal, thereby producing an encoded optical signal;

a first-level mux station that receives the encoded optical signal from the second-level mux station and applies a first-level code to the encoded optical signal producing a composite-coded optical signal; and

a central station that receives the composite-coded optical signal and decodes the first-level code and the second-level code to identify the user station that transmitted the optical signal.

22. (Amended) The central station of claim 6, wherein the code to be applied by the encoder is a composite code.

23. (New) A central station for an optical network, comprising:

a decoder coupled to apply a composite code to an optical data signal, the composite code having a first-level code and a second-level code, wherein the first-level code is to identify a first user station and the second-level code is to identify a second user station; and

an optical receiver coupled to produce an electrical signal from the optical data signal.

24. (New) The central station of claim 23, wherein the composite code to be applied by the encoder is a temporal code.

25. (New) The central station of claim 24, wherein the composite code is an address code designate an intended destination for data defined by the electrical data signal.

26. (New) A multiplexing station for an optical network, comprising:

a temporal address encoder coupled to encode an optical signal according to a first downstream address and a second downstream address, wherein the first downstream address is to designate a destination for a first portion of data carried by the optical signal and the second downstream address is to designate a destination for a second portion of data carried by the optical signal.

27. (New) The multiplexing station of claim 26, wherein the temporal address encoder includes at least one fiber Bragg grating to encode an optical signal.

28. (New) The multiplexing station of claim 27, further comprising an optical circulator coupled to direct the optical signal to the at least one fiber Bragg grating.